

# Focus on International Joint Commission Activities

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Volume 15

Issue 1 *Focus on International Joint  
Commission Activities (ISSN 0832-6673): vol.15  
iss.1*

Article 1

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1990

## Focus on International Joint Commission Activities (ISSN 0832-6673): vol.15 iss.1

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### Recommended Citation

Administrator, UWindsor (1990) "Focus on International Joint Commission Activities (ISSN 0832-6673): vol.15 iss.1," *Focus on International Joint Commission Activities*: Vol. 15 : Iss. 1 , Article 1.  
Available at: <https://scholar.uwindsor.ca/ijcfocus/vol15/iss1/1>

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## HUMAN HEALTH THEME OF FIFTH BIENNIAL REPORT

by Geoffrey Thornburn

**T**he International Joint Commission (IJC) has issued its Fifth Biennial Report on Great Lakes Water Quality. In it, the Commission places major emphasis on persistent toxic substances, their potential impacts on human health and the urgent need for a comprehensive and effective strategy to deal with them.

Other topics in the report are limited to implementing the Great Lakes Water Quality Agreement at the state, provincial and local levels, and brief sections on remedial action plans (RAPs), spills and exotic species in Great Lakes waters. The Commission states explicitly in its report that it did not wish to provide a report on all subjects of importance to the Great Lakes, but one that highlights the issues that need urgent and focused attention. Other topics will be the subject of special reports at a later time.

One issue the Commission previously presented to the Governments of Canada and United States (the Parties) in a letter sent February 20, 1990 is the recommendation to designate Erie, Pennsylvania as a new Area of Concern. The Commission's recommendation is based on analyses by and recommendations of its Great Lakes Science Advisory and Water Quality Boards, which found that the Erie, Pennsylvania area of Lake Erie

does not meet Agreement objectives and beneficial uses of the waterway are impaired.

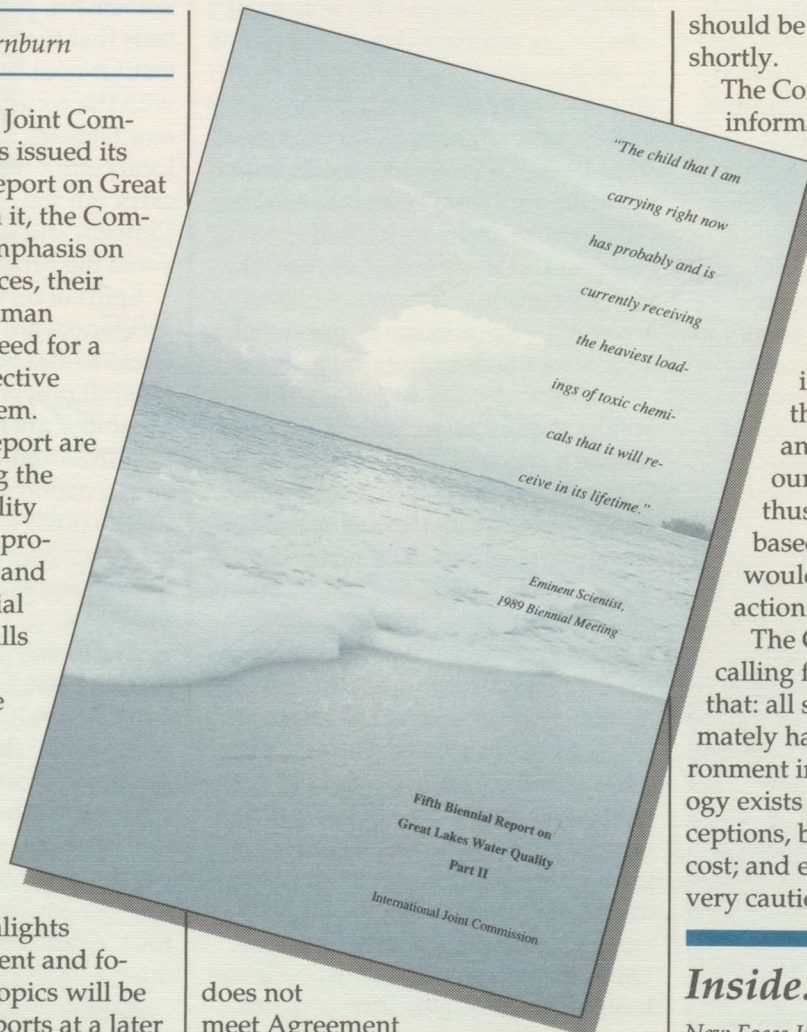
The Fifth Biennial Report was published in two parts: the first, released in March, provides a summary of the public commentary at the IJC's 1989 Biennial Meeting in Hamilton, Ontario. Part II provides the Commission's response to information it received from various sources, including its Great Lakes Boards' reports. Part I was sent to all Focus subscribers in mid-March, and Part II

should be received by all subscribers shortly.

The Commission concludes from information about the impacts of

persistent toxic substances in the Great Lakes environment on fish and wildlife, and available human data, that these compounds pose serious risks to all living organisms. They are threatening human health, and in particular the health of our children. The Commission thus finds in its report that, based on what we know, it would be imprudent not to take action.

The Commission's premises in calling for immediate action are that: all such substances are ultimately harmful; they enter the environment in many ways; the technology exists or can, with very few exceptions, be made available at some cost; and enough is known now to be very cautious about allowing such



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substances to be released into the environment because they carry too high a risk of substantial damage to the biosphere and to humans.

The Commission's recommended framework for action includes a comprehensive, binational program to reduce the use of and human exposure to these chemicals. The strategy should be basically preventive, but include programs to provide for human avoidance and remediation of toxics already in the system. Elements of the strategy envisioned by the Commission would include adequate legislation and regulations to bring Agreement obligations into enforceable effect; a review of other legislation to ensure that it is not inconsistent with the Agreement; improved coordination among jurisdictions and agencies; legislated "reverse onus" requirements for new chemicals, including mandatory pretesting; and further research without inhibiting

immediate affirmative action. The Commission also expresses concern in its report about the contradiction inherent in stocking sports fish that later generally become the subject of consumption advisories.

Two specific approaches are recommended by the Commission as initial steps: a thorough accounting of steps being taken to prevent 11 critical pollutants from being released in point source and nonpoint discharges; and designation of the Lake Superior basin as a demonstration area for zero discharge of persistent toxic substances from point sources.

The strategy and programs that will be required have substantial resource and social implications. The Commission stresses that the Parties cannot accomplish them alone. State and provincial governments will have to be full partners, and local governments must become fully informed and involved with respect to the implementation of the Agreement in their respective areas of responsibility. Considerable emphasis is also placed by the Commission in its report on education, to inform and engage adult and specialized target group populations, and particularly to develop comprehensive school curricula that incorporate Great Lakes environmental education in a basinwide effort which encourages new lifestyles and attitudes towards protection of the Great Lakes ecosystem.

RAPs continue to be seen as a critical aspect of the Agreement. The Commission urges their accelerated completion and implementation, as the plans can provide for needed remedial measures and preventive actions against future degradation. Mechanisms to involve the various interests or stakeholders, as well as the general public, throughout the

RAP development and implementation process are strongly encouraged by the Commission in its report. In addition to providing broader involvement, per se, the Commission feels that the plans provide important institutional bases to move forward with the coordinated efforts of various agencies, the private sector and local communities to support and carry out the restoration of Areas of Concern and to plan a future that can avoid the problems of the past.

Spills of oil and other hazardous substances are a real danger to the Great Lakes. Strengthened provisions for spill prevention and response capability are required. Additional resources and coordination, as well as strong action against human factors that so often contribute to or cause accidents and illicit releases, are required elements of a spill prevention program.

The Commission also notes the potentially serious disruption of the Great Lakes biotic community and economy by the invasion of exotic species such as the zebra mussel and river huffe. The potential for introduction of other exotic species — usually from ocean-going ships — is real, and the consequences could be calamitous. Additional protective measures are needed.

Finally, the Commission asks the Parties to assist it in being more responsive to Great Lakes water quality issues by advising the Commission regularly of the status of their responses to the various IJC recommendations included in its Fifth Biennial Report. For copies of the report, contact Information Services at the IJC's Regional Office, 100 Ouellette Avenue, Eighth floor, Windsor, ON N9A 6T3 or P.O. Box 32869, Detroit, MI 48232. In Canada call (519)256-7821 and in the U.S. call (313)226-2170.



International Joint Commission  
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*Focus is printed three times per year on recycled paper.*

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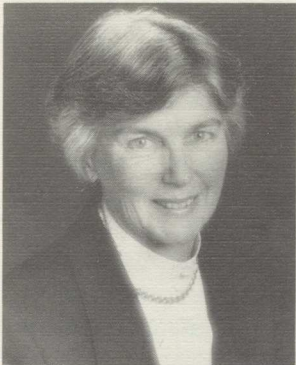
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## NEW FACES JOIN THE IJC



### Cleveland Appointed U.S. Commissioner

*by Frank Bevacqua*

**T**he International Joint Commission (IJC) is not new to Hilary Paterson Cleveland. Approved by the Senate to serve as a U.S. Commissioner on March 7, 1990, she has a number of connections to the IJC and to U.S.-Canadian relations as well.

For example, there is the family connection. Her mother was born and raised in Montréal. As a child, Cleveland was an attendant at the wedding of her first cousin to Arnold D.P. Heeney. Heeney later became Canadian Ambassador to the United States and culminated his career as Chairman of the Canadian Section of the IJC.

Then there is the Vassar College connection. The second woman to be named as an IJC Commissioner, Cleveland was a classmate of Jean Hennessey, the first woman appointed to the Commission. They were among eleven students in the Class of 1948 to major in Government Service in International Relations.

While working toward her gradu-

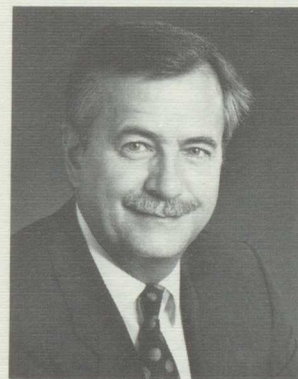
ate degree at the Institute of International Relations at the University of Geneva, Switzerland, Cleveland encountered the IJC in her studies. All of her assignments were completed in the French language, including a thesis on the continental shelf as a boundary in international law. One summer was also spent at the Hague in the Netherlands in studies which focussed on the International Court of Justice. Having no enforcement powers, the Court and the IJC are similar, Cleveland notes, because "both institutions need to generate confidence in the fairness of the process in order to be effective."

Cleveland is presently an Associate Professor of History and Political Science at Colby-Sawyer College in New London, New Hampshire, where she has taught since 1955. She served as trustee for Phillips Academy in Andover, Massachusetts from 1974 to 1977 and for Proctor Academy in Andover, New Hampshire from 1972 to 1983. During 1964 and 1965, she was also a visiting lecturer at the American University School of International Service in Washington, DC.

Active in civic affairs throughout her career, Cleveland served as a member of the National Advisory Council on Continuing Education from 1983 to 1987; as a Director of the New Hampshire Commission on the Arts from 1983 to 1987; as Chairperson of the New Hampshire White House Conference on Library and Information Services in 1978; and as the moderator for the Town of New London since 1982. Her business experience includes serving as a Director of the Public Service Company of New Hampshire since 1984. She was the New Hampshire Finance

Chairperson of the George Bush for President Committee in 1980 and a member of the New Hampshire Finance Committee in 1988.

As spouse of James C. Cleveland, member of Congress from 1962 to 1980, Commissioner-designate Cleveland was an observer at several inter-parliamentary conferences between U.S. and Canadian legislators to discuss issues such as transboundary air pollution, Great Lakes pollution and shared fisheries. Nominated to the IJC by President George Bush last fall, Cleveland has attended Commission meetings as an observer since November 1989.



### Lanthier Appointed Canadian Commissioner

*by Alan Clarke*

**C**laude Lanthier of LaSalle, Québec was named Commissioner, on behalf of Canada, on February 6, 1990. He brings to his new role an extensive background in the economic, political and social life of his community, his province and



his country.

A fifth generation resident of the community of LaSalle, near the Lachine Rapids in the St. Lawrence River, Lanthier served as a member of the House of Commons for the constituency of LaSalle-Emond from 1984 to 1988. During this period he served as Parliamentary Assistant, first to the Minister of Finance, then to the Minister of State for Science and Technology and finally to the Minister of Public Works. He was also chairman of the House Standing Committee on Labour, Employment and Immigration.

As a professional engineer, Lanthier has worked as a senior partner in a number of projects in the Montréal region. For many years he has served as arbitrator and in 1983-84 as vice president of the Arbitrators Institute of Canada.

Lanthier has been active also in the educational field, including serving as a professor in the Ecole d'Architecture of the University of Montréal and as a member of the Board of Directors of the Ecole Polytechnique at the University of Montréal. His public service also includes serving as a member of the Board of Directors of the Québec Liquor Board and Prêts Québec. His professional association memberships include the Ordre des Ingénieurs du Québec, the Consulting Engineers Association of Canada and the Engineering Institute of Canada.

Married to Violet Pietroniro, the Lanthiers have two children. Commissioner Lanthier is a connoisseur of wines and liquors and is chairman of the Board of NIHCO International, a marketing firm for various wines and other spirits.

Commissioner Lanthier took the oath, required of all new Commissioners under the Boundary Waters

Treaty of 1909, at his first Executive Session in Ottawa held this past February.

## Lanthier est nommé commissaire canadien

*par Alan Clarke*

**C**laude Lanthier, de LaSalle, Québec, a été nommé le 6 février 1990 commissaire, au nom du Canada. A ce titre, il fera bénéficier la Commission des vastes connaissances qu'il possède sur la vie économique, politique et sociale de son milieu, de sa province et de son pays.

Résident de la communauté de LaSalle, près des chutes de Lachine sur le Saint-Laurent, depuis la cinquième génération, Lanthier a été membre de la Chambre des communes, de 1984 à 1988, pour la circonscription de LaSalle-Emond. Au cours de cette période, il a occupé les fonctions d'adjoint parlementaire, d'abord auprès du ministre des Finances, puis du ministre d'État de Sciences et Technologie et enfin auprès du ministre des Travaux publics. De plus, il a été président du Comité permanent de la Chambre, Travail, Emploi et Immigration.

Ingénieur professionnel, Lanthier a participé activement, à titre de cadre supérieur, à un certain nombre de projets dans la région de Montréal. Pendant quelques années, il a joué le rôle d'arbitre et, en 1983-1984, il a été nommé vice-président de l'Institut des arbitres du Canada.

Lanthier a également oeuvré intensivement dans le domaine de l'éducation, notamment à titre de professeur de l'Ecole d'architecture

de l'Université de Montréal et comme membre du Conseil d'administration de l'Ecole polytechnique de l'Université de Montréal.

Dans la fonction publique, il a aussi été membre du Conseil d'administration de la Régie des alcools du Québec et de Prêts Québec. Il est membre des associations professionnelles suivantes: l'Ordre des ingénieurs du Québec, l'Association canadienne des ingénieurs-conseils et l'Institut canadien des ingénieurs.

Marié à Violet Pietroniro, il est père de deux enfants. Lanthier est un fin connaisseur de vins et d'alcools et occupe actuellement la présidence du Conseil de NIHCO International, société de marketing qui fait le commerce de différents vins et alcools.

Il a prêté serment, comme doivent le faire tous les nouveaux commissaires en vertu du Traité des eaux limitrophes, et a assisté à la première réunion de la Commission au cours de la séance des cadres qui s'est tenue à Ottawa les 7 et 8 février.



## Fulton Named Canadian Chairman

**T**he Honourable E. Davie Fulton of Vancouver was appointed Chairman of the Canadian section of the International Joint Commission on February 6,



1990. He has served as Acting Chairman since September 1989 when the late Pierre-André Bissonnette resigned due to ill health, and has served on the Commission since January 1986. Previously, Commissioner Fulton was appointed and served as Judge of the Supreme Court of British Columbia from 1973 to 1981, and chaired the Canadian delegation that negotiated the Columbia River Treaty with the United States from 1959 to 1961. He also was a member of Parliament from 1945 to 1965, Minister of Justice and Attorney General of Canada from 1957 to 1962, and first chairman of The Law Reform Commission of British Columbia from 1970 to 1973.



**Pierre-André Bissonnette**

Pierre-André Bissonnette, Q.C., the former Canadian Chairman of the Canadian section of the International Joint Commission, died in Ottawa on December 23, 1989 after a courageous battle with cancer.

He served as Canadian Chairman from his appointment to the Commission in February 1985 until he was forced, by ill health, to resign in September 1989. He was appointed an Officer of the Order of Canada just two days before his death. He is survived by his wife Pierrette, his sister and three children.

## IJC DEVELOPS PLANS FOR GREAT LAKES ROUNDTABLES

by Sally Cole-Misch

**A**t the Biennial Meeting on Great Lakes Water Quality last October, the International Joint Commission (IJC) announced that it would create and hold a series of roundtables, or discussion sessions, to bring together a wide range of interest groups and individuals to consider specific issues concerned with the Great Lakes Basin Ecosystem. By bringing together people of various backgrounds who are primarily from outside the IJC's traditional community of governmental and academic advisers, the Commission hopes to expand and enrich the scope of advice it receives, as well as provide an opportunity for public interaction and dialogue among and between various Great Lakes interest groups and the Commission.

In order to establish a framework and develop ideas for roundtable topics, the Commission held a preliminary meeting with a broad spectrum of individuals from the Great Lakes community on January 31, 1990 in Toronto, Ontario. The perspectives of citizen organizations, Native peoples, industry and governmental commissions were given to Commissioners Gordon Durnil and Robert Welch during the day-long meeting.

Participants suggested that each roundtable should include individuals from all sectors of the Great Lakes community and particularly from national, state/provincial and local governments. This last sector of government was stressed, since it is often local governments which must imple-

ment initiatives dealing with Agreement goals and objectives. It was also emphasized that potential solutions to issues should be the focal point of all roundtables, rather than only a discussion of the problem. As these solutions are examined in each particular roundtable, the barriers that prevent their achievement can also be addressed and cooperative approaches identified by roundtable participants. The outcome of each roundtable should include specific recommendations for action for all sectors of society and should be broadly distributed in special reports to all levels of governments, citizens, industries and others in the Great Lakes basin.

Several topic areas were also proposed, including: strategies to achieve zero discharge and their implications; the adequacy of current legislation and regulations in achieving the objectives of the Great Lakes Water Quality Agreement; alternative technologies for pollution prevention; ecosystem integrity; public participation in the IJC process; the role of individuals in Agreement implementation and the broader issue of environmental awareness, education and action; and governmental and institutional linkages and coordination for Great Lakes issues.

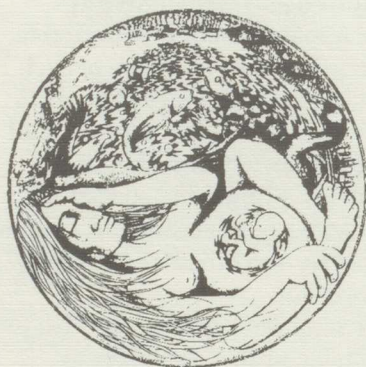
Based on these and other discussions, the Commission is formulating plans to hold at least two roundtables in 1990. Look for further updates on this initiative in future issues of *Focus*.



## BRIEFS

*The Great Lakes: An Environmental Atlas and Resource Book*, cosponsored by Environment Canada's Ontario region and the United States Environmental Protection Agency, has won the British Cartographic Society's prestigious design award for excellence in map production. The educational atlas' maps were prepared by Brock University's Department of Geography, in collaboration with Northwestern University of Chicago.

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The cover illustration for the 1989 *Report of the Great Lakes Science Advisory Board* has been reproduced from an original pen-and-ink drawing by Brad "Tontanake" Bonaparte of the Akwesasne Mohawk Nation. A limited number of posters of the original work are available, free of charge, by contacting Information Services of the IJC Great Lakes Regional Office in Windsor.

\*\*\*\*\*

Thanks to several thousand letters sent to appropriations committees in the U.S. Congress and to the Canadian Government and extensive lobbying by public officials from the Great Lakes region, the Great Lakes Fishery Commission has received full joint funding by the two countries in 1990 to maintain its lampicide program. A lampicide toxin, known as TFM, is placed in the streams where the sea lamprey spawn and is critical to the lakes' sportfishing industry and the health of the lakes' trout and salmon populations. The Fishery Commission has found that the lamprey has made a comeback in certain locations in the basin, and

thus continuation of the program is essential.

In the U.S., Congress has also approved appropriations of \$41 million for the National Sea Grant College Program for the 1990 fiscal year. This is the first budget increase the program has received in eight years, and a percentage of the funds will be allocated to Great Lakes Sea Grant programs.

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The Mott Foundation has awarded a \$70,000 grant to the International Association for Great Lakes Research in Ann Arbor, Michigan to assist U.S. and Canadian scientists in developing and pursuing new approaches to understanding and solving Great Lakes toxic pollution problems. For further information on this project contact John R. Krezoski, Center for Great Lakes Studies, University of Wisconsin-Milwaukee, P.O. Box 413, Milwaukee, WI 53201.

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**The Ontario Roundtable on Environment and Economy**, an Ontario government advisory body comprised of representatives from government, the private sector, labour, environmental, agricultural and native communities, has endorsed a strategy to produce a sustainable development process for Ontario. The nature and public consultation components of the process are designed to develop greater awareness of sustainable development and its challenges. Public education about environmental problems and known solutions is emphasized, and objectives and targets identified by the Roundtable will be used as the focus of "challenge papers" directed at the public and to sectoral task forces for review and comment.

For further information on the Roundtable process contact Richard A. Findlay, Ontario Roundtable on Environment and Economy, 790 Bay Street, 10th floor, Toronto, ON M7A 1Y7. (416)586-2032.

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According to a University of Michigan survey of government representatives

and environmentalists in the Great Lakes basin, the quality of inshore water in the Great Lakes has improved over the past 15 years. The survey, **"Trends and Emerging Environmental Issues in the Great Lakes: Perceptions and Assessments,"** compares attitudes toward Great Lakes water quality in 1986 with those of a similar 1971 survey.

The latest survey shows increased levels of concern about water quality and environmental issues since 1971. While respondents said that water quality in all the Great Lakes had improved significantly, nearly one-third also felt that toxic pollution is the most serious threat to that quality. State and provincial agencies were seen by respondents as the best level of government to oversee water quality monitoring, but these same agencies were also cited as being inadequate because of a lack of water-oriented planning and interagency cooperation. The survey also showed a significant increase in urbanization along Great Lakes shorelines since 1971.

Results of the survey are being given to policymakers in state, village and township government levels. For more information on the survey contact Kate Kellogg, The University of Michigan, 412 Maynard, Ann Arbor, MI 48109-1399. (313)747-4418.

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As consumers become more aware of the need to lessen the amount of waste generated and sent to landfills, more attention is being placed on finding and using recycled paper products. But what is recycled paper? All paper contains some recycled fibre from mill and printers' waste.

Thus, consumers should look for the percentage of recycled fibre made from used paper as a part of recycling labeling. The Canadian Federal Government's Environmental Choice guidelines, for example, propose minimum content standards for four categories of recycled paper. In order to qualify for the Environmental Choice label, printing papers must have more than 60 percent recycled content and business papers must be 100 percent recycled. In the U.S., the Environmental Protection Agency issued guide-



lines in 1988 which set minimum recycled content standards for 21 categories of paper products, including a 50 percent guideline for printing and writing paper. As greater demand is placed on paper industries to produce recycled paper, they are finding that expensive de-inking and other technologies needed to produce high recycled content paper are effective long-term investments.

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The Ontario commitment to curbside recycling has increased by 70 percent in the last year, according to the Ministry of the Environment. Funded by the Ontario Ministry's Recycling Support Program, curbside recycling is part of the ministry's Comprehensive Funding Assistance Program for waste management. The focus of the program, which has provided blue boxes for pickup of recyclable materials in 1.7 million homes in the province, is on reduction and reuse of recyclable materials at home, in schools and the workplace. The Blue Box program, as the recycling effort is called, was recently honoured with an environmental leadership award by the United Nations.

\*\*\*\*\*

A steering committee for a new Conservation Foundation project called **Strategies for Source Reduction**, with members representing business, government and the public concerned with solid waste issues, will explore product and packaging designs, review new options for reducing the amount and toxicity of solid waste, and provide a forum for building consensus on options that will help implement these policies.

Funded by the U.S. Environmental Protection Agency's Municipal Solid Waste Program, the committee is expected to present final recommendations to local, state and federal governments and the private sector in fall 1990.

For further details contact Leigh Ann Hurt, The Conservation Foundation, 1250 Twenty-Fourth Street NW, Washington, DC 20037. (202)778-9510.

\*\*\*\*\*

The **New York Great Lakes Basin Advisory Council** has been developed to create a strategy for advising the New York Department of Environmental Conservation and New York Governor Mario

Cuomo on developments of a 25-year plan for management of the Great Lakes-St. Lawrence River ecosystem. In addition, the advisory council is directed to encourage cooperation and coordination among all state agencies to enhance the quality of Great Lakes resources.

Four objectives to be pursued by the council are to review and make recommendations on the plan; develop recommendations for legislative initiatives; assess state land acquisition needs of the Great Lakes region; and review and advise on proposals to other Great Lakes institutions and constituencies.

For further information on the council contact David Miller, Northeast Regional Office of the National Audubon Society, 1789 Western Avenue, Albany, NY 12203. (518)869-9731.

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Dr. Donna Bedard, a microbiologist at General Electric's Corporate Research and Development Center in New York, has developed a possible breakthrough in biological cleanup of polychlorinated biphenyls, or PCBs, a major pollutant in the Great Lakes ecosystem. Using anaerobic microorganisms found in bottom sediments to strip away chlorine atoms from PCB molecules, she has found that that the pollutant is more likely to then be consumed and destroyed by aerobic bacteria found in the water column. Additional laboratory and field work is required to further define this process, but initial results have been encouraging, according to the scientist.

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**Protecting Our Water Environment** is a new photographic exhibit at the Chicago Academy of Sciences, located at 1201 N. Clark Street in the city's Lincoln Park community. The year-long exhibit explores the Great Lakes ecosystem's past, present and future, and human interaction with the lakes. For more information on the exhibit call the museum at (312)871-2668.

\*\*\*\*\*

The **Schoolship Program** is a half-day educational experience aboard a Great Lakes schooner on Grand Traverse Bay, Michigan. School children will be given the opportunity to experience sailing a schooner while learning ecology, history,

geography, biology and chemistry of the lakes, as well as navigation. The program is designed for grades 6-8 and can be customized for groups with special needs or interests.

Program fees and further information can be obtained by writing to Inland Seas Education Association, Box 4223, Traverse City, MI 49685. (616)271-6637.

\*\*\*\*\*

**The Story of Drinking Water** is a set of classroom resource materials which include teacher's guides, student activities and a cartoon style booklet. The package also has two free activity books for students in an animated format which include hands-on exercises, how-to suggestions, and provide background information on water. Three separate teacher guides have been developed for primary, elementary and junior high levels for \$4.50 each (US funds).

To obtain a free packet of materials or teacher guides contact Kim Knox, Youth Education Department, American Water Works Association, 6666 West Quincy Avenue, Denver, CO 80235. (303)794-7711.

\*\*\*\*\*

New faces are joining some of the IJC's boards and councils. **Anthony Friend**, director of the Environmental Statistics Program for Statistics Canada, and **Laurie Montour**, who serves as natural resources policy analyst for the Assembly of First Nations, have been appointed to the Great Lakes Science Advisory Board. The Council of Great Lakes Research Managers also welcomes **John Neate** as a new member. Neate works as associate director of the Wastewater Technology Centre, Conservation and Protection Service of Environment Canada. **Roger Patterson** has also been appointed as the new U.S. chairperson of the IJC's International Souris-Red Rivers Engineering Board.

At the IJC's Regional Office in Windsor, the staff wished good luck to two employees who left in late 1989 and early 1990. **Dr. Andrew E.P. Watson** retired in late December after working for the Commission as senior science coordinator for 16 years. Watson served as secretary for the Research Advisory Board, now known as the Science Advisory Board (SAB), and for several committees and task forces under the SAB and Water



Quality Board. **Yvan Gagné**, who worked as the Commission's graphic artist for 12 years, left to start his own graphic design business in late January. We wish them both good fortune in their endeavors.

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### WHAT IS EARTH DAY 1990?

On the first Earth Day, April 22, 1970, thousands of schools, colleges and universities and communities in the United States participated in one of the largest organized demonstrations in human history. Individuals are becoming involved in commemorating the 20th anniversary of Earth Day on April 22, 1990. A few events being held around the Great Lakes basin include:

#### **Illinois:**

teach-ins on environmental issues, musical events, recycling efforts, green attire day, parade, disposables-out day, environmental time capsule, photo exhibit of the lake, park cleanups, giant goat art sculpture constructed from recyclable materials, state-wide household hazardous waste cleanup, distribution of acorns to school children to teach importance of tree planting.

#### **Indiana:**

rally at the capitol, trash art contest demonstrating volume of reusable garbage, recycling conference, environmental festival and seminars.

#### **Michigan:**

special report on solutions to environmental and human health threats to be released on Earth Day, workshops, children's programs, poster contests, concerts, bike-a-thons, bulletin board displays, cleanup of Clinton River, 5K run, teach-in at the University of Michigan, half marathon and fun walk, paper recycling program in East Lansing High School.

#### **Minnesota:**

seminars on college campuses, beach cleanup in Duluth, mall exhibits, teacher workshop, week-long teach-in, tree planting, concerts, cleanup along the Mississippi, empty parking lot challenges, series of newspaper articles entitled "The Home Pollution Fighter," environmentally sound products list, refrigerator poster on environmental tips for the homeowner, "Save a Wet-

land" poster contest.

#### **New York:**

Earth Day package to be presented to the State Assembly, churches and synagogues in New York City will participate in opening ceremonies, special events in Time Square, camp-ins with local Girl Scout Troops.

#### **Ohio:**

month-long activities including Earthfest at Salem Mall, recycling drive, exhibits and graphics, poster and sculpture contests, special Earth Day newsletter from Conservation and Outdoor Education Association, tree planting, cleanup of Ohio River.

#### **Pennsylvania:**

action kits by the Delaware Valley Coalition, Pennsylvania Department of Environmental Resources and the Office of Environmental Education, release of first annual Directory of Environmental Entrepreneurs, environmentally-friendly product designs conference, school activities, interfaith ceremony, parade, educational ecofair, concerts.

#### **Wisconsin:**

special environmental awards, plant-a-tree, conference with Earth Watch radio program, recycling week with 4-H groups, Earth Year proclamation, special course with lectures, films and discussions, 20-year reunion of Earth Day at Stevens Point.

#### **Ontario:**

Earth Day Environment Fair at the Metro Toronto Zoo, concerts, CJRT-FM radio program dedicated to environment, Mayor of Toronto officially proclaiming Earth Day, school presentations, tree plantings, bulletin board displays, earth song competition, boycott of junk mail, street dance, downtown cleansweep, kite festival, wear an Earth Day T-shirt.

#### **Quebec:**

in coordination with Environment Week, special presentations will be given to sport fishermen on contamination along the St. Lawrence River.

For contacts on these and other Earth Day events, write or call Beverley Croft, International Joint Commission, 100 Ouellette Avenue, Eighth floor, Windsor, ON N9A 6T3 or P.O. Box 32869, Detroit, MI 48232. Call (519) 256-7821 in Canada or (313) 226-2170 in the United States.

## DOW ANNOUNCES POLLUTION PREVENTION PROGRAM FOR SARNIA PLANT

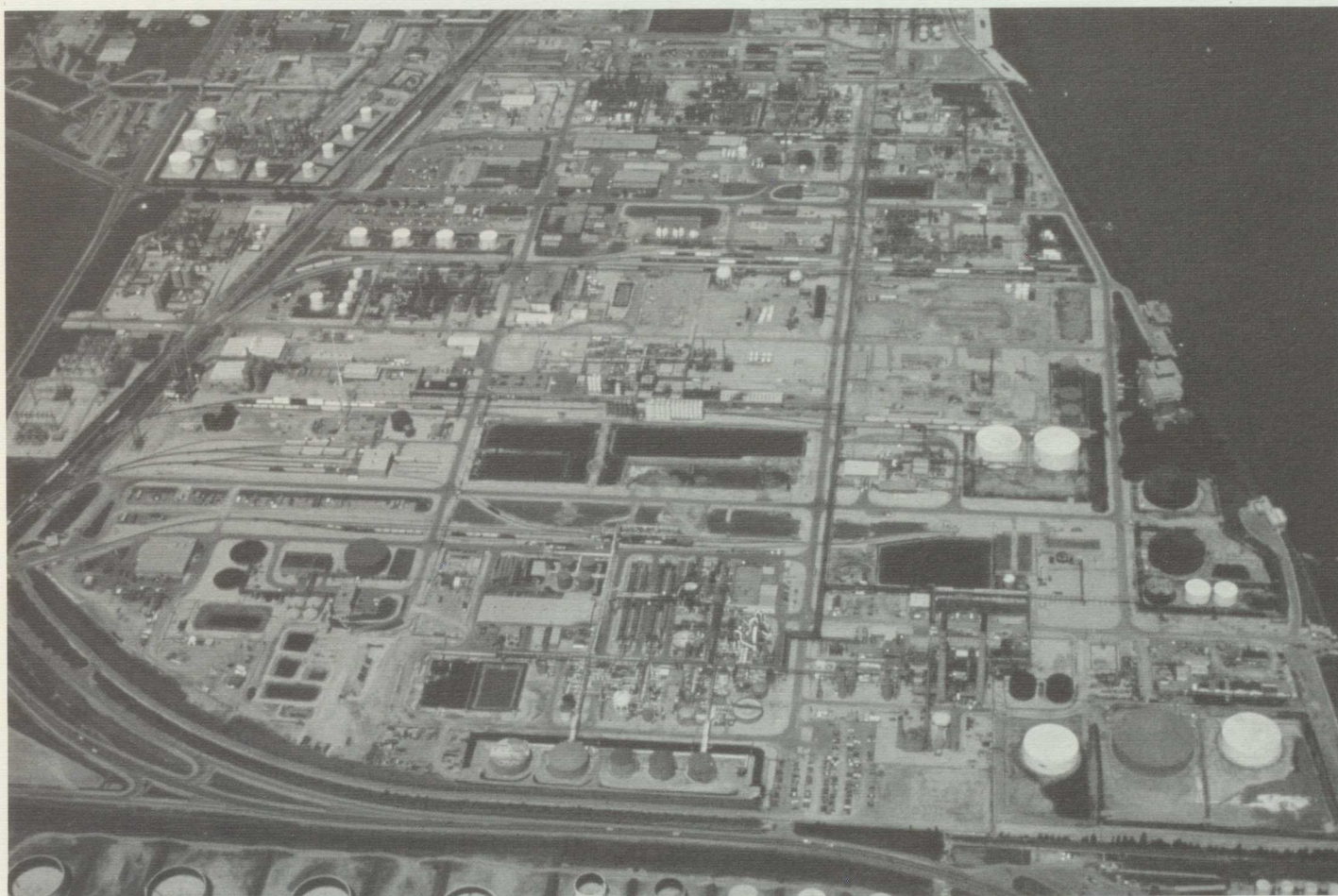
by Darlene MacKinnon

A major initiative to virtually eliminate harmful discharges and spills to the St. Clair River has been undertaken by Dow Chemical Canada at their Sarnia operations. The company will begin work immediately on a number of major water-related projects to separate its Sarnia plants from direct contact with the river by the year 2000.

The initiative is a continuation of Dow's efforts throughout the '80s to improve the environmental performance of their Sarnia plant. Over the past ten years Dow has spent \$55 million in Sarnia on ecology-related projects, the majority of which were directly linked to minimizing the impact of its operations on the river. These efforts have produced significant results.

In 1979, Dow's Sarnia operation was releasing 1,016 kg (2,240 lbs) per day of priority pollutants into the river. By 1989 that number had been reduced by 99% to 8 kg (18 lbs) per day. Over the same period, spills to the river have been significantly decreased. Dow Sarnia's efforts contributed to the Dow Chemical Company receiving the 1989 Gold Medal for International Corporate Environmental Achievement from the World





*An aerial view of Dow's Sarnia Plant. The plant employs over 1,200 people and contains 13 manufacturing units.*

Environment Center in Washington, DC.

According to company officials, Dow's recent announcement is a continuation of these efforts. The initiative got off the ground last summer when Dow set up a study team to examine how to separate its plant from direct contact with the river. The team began by identifying the three major categories of effluent from the Sarnia operations: salt-free process, storm runoff water and cooling water. The group then began to investigate ways to manage these wastewater streams.

"We focussed on the 4Rs of waste management when looking at how to deal with these streams," explains Mike Bowman, who chaired the study team and who will manage the project for Dow. "The answers we've come up with are, in many cases, to reduce, reuse, recycle and recover the water." For example, one project will

return a large portion of the salt water effluent from the biological oxidation unit to the company's brine farm to be upgraded and reused as a feed-stock for the chlor-alkali unit.

A similar solution is proposed to reduce the amount of treated process water currently being sent to the river. Treated water from various units around the plant site will be reused in plant processes which require water. This will reduce both the intake of water into the plant and the effluent being released. As well, a major effort will be undertaken to separate the plant's sewers. This will ensure that stormwater runoff and cooling water are separated, allowing Dow to contain, monitor and, if necessary, treat runoff water before it enters the river.

The third waste water stream is cooling water. Here, the team plans to identify where cooling water is used and if it is possible to replace

these water-based systems with alternative cooling methods, such as air exchangers. Dow's team will also be examining ways to recycle cooling water using available technology, such as cooling towers. This will result in a dramatic decrease in both the water taken into the plant and the water released.

While engineering for these new projects is ongoing and all of the technical questions have not yet been solved, Dow has committed both money and people to separating its Sarnia plants from the St. Clair River. Dow Canada will spend \$20 million on ecology-related projects in the coming years, and \$10 million of that will be spent in Sarnia.

For more information about Dow's water projects, contact Darlene MacKinnon, Dow Chemical Canada Inc., Sarnia Division, P.O. Box 3030, Sarnia, ON N7T 7M1. (519)339-5157.



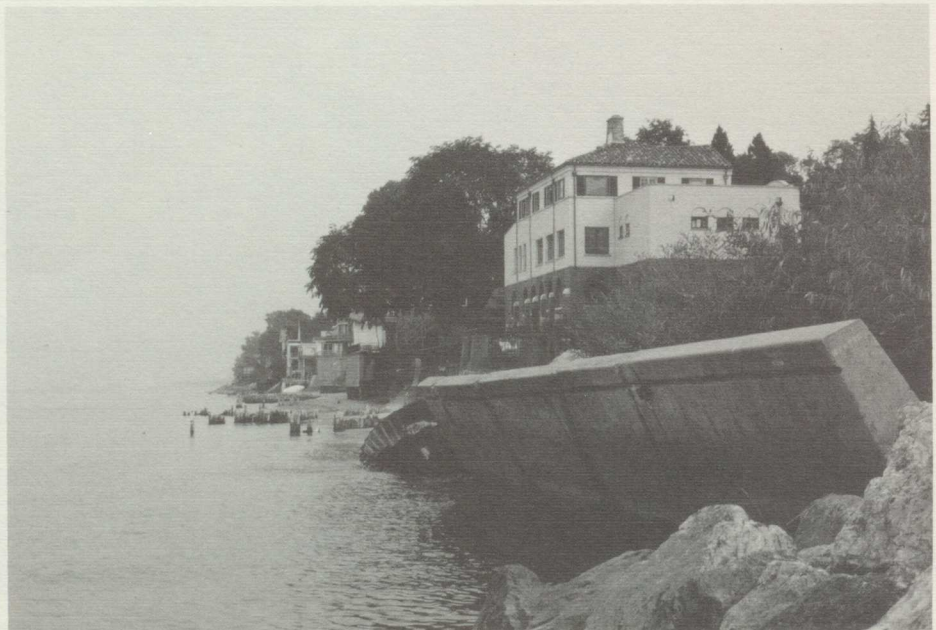
# LAKE LEVELS UPDATE

## PHASE II OF LEVELS STUDY UNDERWAY

by Sally Cole-Misch

In a directive approved February 8, 1990, the International Joint Commission (IJC) established the Levels Reference Study Board to complete Phase II of the 1986 Reference from the Governments of Canada and the United States on fluctuating water levels in the Great Lakes-St. Lawrence River basin. The board will be responsible for overseeing completion of all activities relevant to the objectives of the study, and for preparing a final report to the Commission on its findings.

The board includes four members from each country — one federal agency representative, two members from state or provincial agencies, and one nongovernmental or citizen member — and a study director. Brigadier General Jude Patin of the U.S. Army Corps of Engineers and Tony Wagner, regional director of the Inland Waters Directorate for Environment Canada, Ontario region, will serve as the federal representatives. State/provincial members include Ronald Nargang, director of the Division of Water in Minnesota's Department of Natural Resources; Joseph Hoffman, assistant director of the Bureau of Water Resources Management in Pennsylvania's Department of Environmental Resources; André Harvey, general director for the Environment and Economy for Quebec's Ministry of the Environment; and Maurice Lewis, director of the Conservation Authorities and Water Management Branch for Ontario Ministry of Natural Resources. Citizens appointed on an interim basis to as-



Great Lakes shorelines are still affected by the high levels of 1986. Credit: Frank Bevacqua

sist in drafting the plan of study are Philip Weller, executive director of Great Lakes United and Cliff Sasfy, past president of the International Great Lakes Coalition. A study director will also be hired to serve on the board and assist it in carrying out its programs and priorities.

Among the steps the Commission has taken to ensure an open study process for Phase II is the involvement by members of the public and various interests. A Citizens Advisory Committee has been established to assist the board in all parts of the study, and particularly in carrying out various public participation processes to be developed during the course of Phase II. The committee will serve as a link between the board and the public throughout the study process. The committee, at one of its initial meetings, will select two of its members to replace the interim nongovernmental members on the study

board.

The board has been directed to submit a plan of study to the Commission by mid-May outlining its proposed investigations required to fully respond to the Reference. This plan of study is to reflect objectives designated by the Commission for Phase II (and others the board may develop) which, among others, include: a set of guiding principles the Commission could propose to Governments to deal with fluctuating water levels; short-term studies in several areas; and evaluation of a range of management measures on a variety of type-specific sites around the basin. Examples of short-term studies include: continuing the development of a Geographic Information System initiated in Phase I; enhancing Phase I information on the interrelationship of coastal erosion with fluctuating water levels; developing and testing a range of partial-to-total



# LAKE LEVELS UPDATE

structural control options to confirm or reject the conditional conclusion reached in Phase I that lake regulation measures are not justified; and continuing research and categorization of the types of human uses of the shoreline in order to provide potential damage assessments during fluctuating water level conditions.

The board is also required to submit bimonthly reports to the Commission describing progress and problems encountered during the course of the study. The Commission, for the first time, will make all reports, meeting records and other documents prepared by the board, its committees and work groups available for public review. The board will provide further details in its plan of study as to the public consultation and participation program it will undertake as part of this Phase II process.

For further information about Phase II of the Levels Reference study, look for updates in coming issues of *Focus*. We expect that copies of the Plan of Study will be available in June and can be obtained for review and comment by all interested citizens. Public meetings may also be held to obtain further input. For copies of the plan and further details, contact Frank Bevacqua, International Joint Commission, 2001 S Street NW, Washington, DC 20440, telephone (202)673-6222 or Alan Clarke in the IJC's Ottawa office, 100 Metcalfe, 18th floor, Ottawa, ON K1P 5M1, telephone (613)995-2984.

## Levels and Precipitation Down in 1989

By October 1989 all of the Great Lakes had begun their seasonal declines toward their annual winter lows. Less than average precipitation

in October and December, along with extremely cold temperatures in December, contributed to the rapid decline in water levels by the end of the year. Lakes Superior and Michigan-Huron levels remained close to or slightly below their long-term average throughout 1989, while Lake Ontario began the year below average and ended with approximately

average levels. Lakes St. Clair and Erie levels continued to decline but remained above their long-term averages in 1989.

1990 began with average precipitation levels in January. Based on predicted precipitation rates, all of the lakes are expected to remain below long-term averages for the first half of the year.

### 1989-1990 GREAT LAKES LEVELS

Lake	Recorded	Level Max/Year	Min/Year	Long-Term Average (1900-1988)
<b>OCTOBER</b>				
Superior	600.50	602.24/1985	599.49/1925	601.00
Michigan-Huron	577.84	581.62/1986	575.77/1964	578.43
St. Clair	573.66	576.69/1986	571.13/1934	573.44
Erie	570.76	573.31/1986	567.95/1934	570.33
Ontario	244.55	246.33/1945	241.72/1934	244.35
<b>NOVEMBER</b>				
Superior	600.39	602.24/1985	599.17/1925	600.86
Michigan-Huron	577.63	581.29/1986	575.57/1964	578.22
St. Clair	573.30	576.20/1986	570.83/1934	573.16
Erie	570.43	573.01/1986	567.60/1934	570.07
Ontario	244.39	246.18/1945	241.45/1934	244.10
<b>DECEMBER</b>				
Superior	600.04	601.99/1985	598.94/1925	600.64
Michigan-Huron	577.32	580.87/1986	575.40/1964	578.06
St. Clair	573.37	576.14/1986	571.05/1925	573.17
Erie	570.19	573.11/1986	567.53/1934	570.01
Ontario	244.15	246.19/1945	241.48/1934	244.03
<b>JANUARY</b>				
Superior	599.78	601.64/1986	598.58/1926	600.39
Michigan-Huron	577.22	580.65/1987	575.39/1965	577.92
St. Clair	573.18	576.13/1986	569.86/1936	572.84
Erie	570.18	573.05/1987	567.62/1935	569.99
Ontario	244.03	246.10/1946	241.67/1935	244.07



## ECOSYSTEM OBJECTIVES FOR LAKE ONTARIO AND THE GREAT LAKES: YOUR PERSPECTIVE

by Trefor Reynoldson and Paul Bertram

The amended Great Lakes Water Quality Agreement requires that ecosystem objectives be developed by the Governments of Canada and the United States for each of the lakes in order to guide the restoration process in the Great Lakes Basin Ecosystem. These objectives will provide a broader perspective than the more traditional, chemically based water quality objectives, but will require value judgments concerning the desirable qualities of the Great Lakes ecosystem that we as a society wish to achieve and maintain. Progress toward achieving each objective will be determined according to selected measurable and quantifiable indicators.

The development of these objectives is being coordinated for the two governments by a binational Ecosystems Objectives Work Group (EOWG). These objectives will represent desirable endpoints for the various components of the Great Lakes, such that a sustainable and self-perpetuating ecosystem can be maintained. It is likely that the objectives will primarily be biological in nature and the indicators will include those species that are most intimately associated with Great Lakes waters.

The EOWG recognizes that the selection of ecosystem objectives should represent a consensus by interested persons and groups in each lake basin, and should not be the product solely of scientists and governments. Therefore all individuals throughout

the Great Lakes basin are invited to send their views and suggestions for appropriate ecosystem objectives for the Great Lakes to either author. All persons submitting objectives are requested to include a clear rationale for each objective and, if possible, some suggestions as to what indicators may be appropriate to measure progress in meeting the proposed objective. The type of objectives being considered thus far include:

- The Lake Ontario foodweb should support stable, top predator fish populations that sustain themselves by natural reproduction.
- Birds and mammals that have historically been part of the Lake Ontario ecosystem should be free from measurable contaminant impacts on reproductive success and should demonstrate normal growth and development.
- Human consumption of fish and wildlife should not be limited by a risk of adverse health as a result of contaminants in those fish and wildlife.

In view of the progress to date through the Lake Ontario Toxics Management Plan, the work group will focus first on Lake Ontario. In March 1990 the EOWG conducted a workshop with representatives from government, industry, academia and environmental groups to discuss appropriate ecosystem objectives for Lake Ontario of the type described above. The workshop also addressed and provided advice to the EOWG

concerning suggestions submitted by individuals throughout the basin. All individuals interested in submitting objectives, suggestions and views are asked to send those for Lake Ontario as soon as possible, and for the other Great Lakes as developed, to:

*Dr. T.B. Reynoldson*  
National Water Research Institute  
Environment Canada  
Canada Centre for Inland Waters  
867 Lakeshore Road  
Burlington, ON L7R 4A6

or

*Dr. Paul Bertram*  
Great Lakes National Program Office  
U.S. Environmental Protection Agency  
230 S. Dearborn Street  
Chicago, IL 60604



## THE CUYAHOGA: A WORKING RIVER

### Putting Out the Fire

by Virginia Aveni

**T**he Cuyahoga is a working river. Recognized in the late 1700s as a key port of entry from Lake Erie into the new frontier, the river became an important transportation route and led to massive settlement and industrialization of the region through the 1800s. Today, the river continues to support the people of the region through transportation, water supplies and other essential needs.

The river's heavy duty work begins at Lake Rockwell, 91 km (57 miles) from the confluence with Lake Erie. Here a substantial volume of its flow is diverted and processed into drinking water for the City of Akron. Near Akron the river makes a jaw-bone shaped turn, from which the Seneca Indian name, *Cuyahoga*, is derived.

Downstream of Akron the diverted water is returned to the river via the Akron wastewater treatment plant. For the next 35 km (22 miles), the Cuyahoga flows through the pastoral Cuyahoga Valley National Recreation Area before entering the heavily industrialized heart of Cleveland. Tributaries send loadings from industry and other suburban wastewater treatment plants into the main waterway. Urban runoff, combined sewer overflows and other sources in the highly urbanized areas of Akron and Cleveland also contribute to the environmental pressures placed on the relatively small Cuyahoga River.

Eighteen km (11 miles) upstream from the confluence with Lake Erie,



*Cuyahoga River Flats Area has multiple uses, where commercial ships share the river with pleasure craft. Credit: Charles E. Allen*

the Northeast Regional Sewer Districts Southerly Treatment Plant discharges into the Cuyahoga, which by now has become a small stream. LTV Steel, with blast furnaces and coking ovens, line both sides of the river for the next three miles. Metal finishing plants and chemical companies discharge into the river before it leaves the heavily industrialized area and enters the commercial area known as the "the flats," where an entirely new scenario is taking shape.

In these last three km (two miles), the emerging recreation and entertainment district is rapidly growing and competes with other uses of the river. Night clubs, marinas and restaurants dot both sides of the river. Pleasure craft and scullers vie with Great Lakes ore boats for space on the narrow and winding river.

The river that was once so contaminated with industrial wastes that

it actually caught fire is now supporting the development of an important recreational area. The fire is out, but much work remains to continue the restoration of the Cuyahoga River.

### Improving Water Quality Trends

The International Joint Commission's (IJC) Great Lakes Water Quality Board, in consultation with the Great Lakes states and provinces, identified the Cuyahoga River as an Area of Concern from Akron River mile 37.4 (km 59.8) to Lake Erie, which includes the nearshore lake area immediately adjacent to the river mouth. The most impacted area of the mainstream of the Cuyahoga River is the shipping channel, where the character has been so altered by maintenance dredging and shoreline development that virtually no natural riverine habitat remains. This character-



Figure 1. Ammonia levels of the Cuyahoga River Upstream and Downstream of the Akron Wastewater Treatment Plant

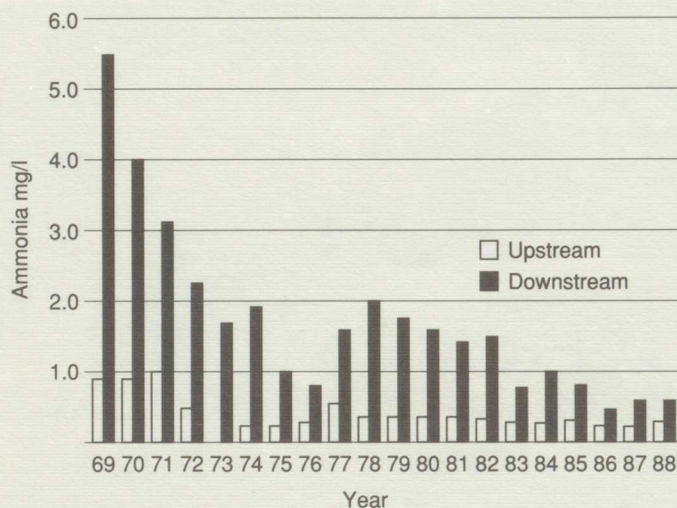
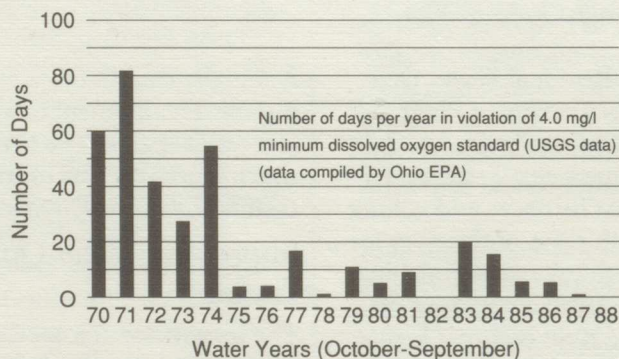


Figure 2. Dissolved Oxygen Levels of the Cuyahoga River at Independence (Old Rockside Road)



istic has complicated the establishment of an "aquatic life use designation" for the lower Cuyahoga River in Ohio's Water Quality Standards and fuels the debate over what levels of water quality are desired versus what is realistically attainable.

Water quality data collected over the last 20 years indicate improvement. Most chemical water quality standards violations have been eliminated or substantially reduced in the

64 km (40 mile) stretch of the river from Akron to the lakeshore. However, some serious problems remain in portions of the 9 km (5.6 mile) long navigation channel in Cleveland. If the ship channel was designated a warmwater habitat, water quality standards would frequently be violated for dissolved oxygen, ammonia, heavy metals, phenol, cyanide and fecal coliform bacteria.

Biologically, the lower 40 km (25

miles) are recovering from the grossly polluted conditions that were present 20 years ago. The communities of aquatic organisms living in this stretch of the river are not yet present at levels which attain Ohio Environmental Protection Agency's (EPA) definition of the ecosystem quality needed to achieve the fishable goals of the U.S. Clean Water Act. However, given the greatly improved conditions observed over the past five years, this goal may be achieved in some portions of the river in the near future.

The two largest sewage treatment plants, Akron and the Cleveland area's Southerly, each may contribute as much as 60 percent of the total flow of the river downstream of their respective discharges. Many millions of dollars have been spent to upgrade these and other wastewater treatment systems. As a result, chemical water quality conditions downstream of Akron have shown dramatic improvements: ammonia levels have dropped tenfold, while the dissolved oxygen problems have been virtually eliminated (see figures 1 and 2). Ammonia levels downstream of the Southerly wastewater treatment plant have also decreased dramatically.

While the biological quality has also shown some improvements in the lower and middle region of the river, recovery of aquatic organisms has not kept pace with the observed chemical improvements. Populations of benthic invertebrates (insects, snails, worms and other bottom-dwelling organisms) improved from "poor" to "good" over the past seven years, as defined by Ohio EPA's Invertebrate Community Index. However, the reestablishment of well-balanced fish communities has not occurred. The number of species and total number of fish have increased,





*A boat tour of the Cuyahoga River kicked off and introduced the RAP process and included Ohio EPA Director Richard Shank, Governor Richard Celeste and actor-environmentalist Robert Redford.*

but many of the pollution sensitive species are rare or absent.

Many of the biological improvements observed in the middle portions of the Cuyahoga River are not occurring in the lower navigation channel. This is undoubtedly due to impaired chemical water quality and to the lack of natural habitat in the ship channel. Identifying further remedial measures to restore this area will be a key part of the remedial action plan (RAP) process.

### RAP Organization

Identifying the sources of persistent pollution that remain in the Cuyahoga River is one of the major tasks confronting the 35-member Cuyahoga Coordinating Committee (CCC), the planning and advisory body appointed by Ohio EPA Director Richard Shank to oversee preparation of the Cuyahoga River RAP. Members of the CCC represent widely diverse interests including

industry, public interest groups, and federal, state and local governmental units. The CCC has established three major committees to draft the plan, to provide technical assistance, and to develop and implement community involvement projects.

The CCC has devoted considerable attention to developing a goals statement and workplan that address both RAP requirements and the larger issue of linking the RAP to the community's revitalization goals. The CCC's Plan Drafting Committee is charged with the critical task of submitting a Stage 1 RAP report to Ohio EPA and then to the IJC. To complete this task it has created subcommittees for specific topics, including point source management, nonpoint source (including debris) management, biota impairments, toxics consumption, recreational impairments, and socioeconomic considerations. The subcommittees are charged with overseeing investigations, preparing use

impairment status reports and analyzing contributing sources and causes.

### Community Involvement Activities

The Community Involvement Committee kicked off the creation of the CCC in October 1988 with a boat trip on the Goodtime Cruise Line by members of the committee with Governor Richard F. Celeste and actor-environmentalist Robert Redford. A spring 1989 tour on the Cuyahoga Valley Railroad took members along the river in the Cuyahoga Valley National Recreation Area to the Akron Wastewater Treatment Plant. Television and newspaper coverage gave the public and committee members the opportunity to see the potential visual and recreation benefits in the recreation area of the river.

The committee is currently preparing a series of spring workshops for public involvement. The first series will be primarily educational, to enlist participants in defining the river's identified problems as well as to recruit supporters for remediation efforts. A second series, scheduled for the fall, will be intense, facilitated workshops to develop options and alternatives for the final plan.

### Technical Committee Activities

The river valley is ideally suited for enjoyment from a canoe, but high fecal coliform bacteria levels in the river have restricted such use in the park area. During 1987 and 1988, Ohio EPA studies located several dry weather sewage overflows in Akron and Cuyahoga Falls that greatly increased the fecal coliform bacterial levels in the river. Remedial efforts by the respective cities were completed by spring 1989. Coupled with continued treatment advances at the



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The report, *Great Lakes, Great Legacy?* calls for cooperation at the national, state, provincial and local levels to protect human health and natural resources in the Great Lakes basin. Written by the Conservation Foundation of Washington, DC and the Institute for Research on Public Policy in Ottawa, Ontario, the report states that there is a threat to human health in the Great Lakes region because of the accumulation of toxic substances in the food web.

To order a copy of the full report (\$22 US funds) or a 31-page booklet (\$6.50 US funds), write to The Conservation Foundation, P.O. Box 4866, Hampden Post Office, Baltimore, MD 21211 or call (301)338-6951. Canadian residents write to the Institute for Research on Public Policy, P.O. Box 3670, Halifax, NS B3J 3K6. (613)238-2296 or 1-800-565-0659. Copy of full report is \$24.95 (Cdn funds) or the 31-page booklet is \$6.50 (Cdn funds).

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The Ontario Hazardous Waste Source Book, A Glossary of Hazardous Waste Management and A Reporter's Guide to the Chemicals in Today's Headlines are three booklets produced in 1989 by the Ontario Waste Management Corporation (OWMC). The booklets answer technical questions, provide a source of hazardous waste facts and figures and give some background on policies and programs used to control these materials in Ontario.

For copies of the OWMC Press Guide Series contact Murray Creed, Media Relations, OWMC, 2 Bloor Street West, 11th floor, Toronto, ON M4W 3E2. (416)923-2918 or in Canada 1-800-268-1178.

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To assist classroom teachers and other educators in their search for information, the Illinois-Indiana Sea Grant Program has prepared a project guide. *Appreciating Your Great Lakes* provides references to build programs in grades 6-12 and suggestions for teaching about the Great Lakes. The four activity sections cover recreation, heritage, ecology and economics. The 95-page guide may be purchased from the University of Illinois at Urbana-Champaign for \$4 (US funds); discounts apply on bulk orders. Send purchase order with payment to the University of

Illinois, 51 Mumford Hall, 1301 West Gregory Drive, Urbana, IL 61801. (217)333-9448.

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The Institute for Research and Public Policy (IRPP) and the Royal Society of Canada sponsored two workshops early in 1988 to consider Canada's environmental record and what directions the country should take in future initiatives. The resulting report, *The Bruntland Challenge and the Cost of Inaction*, is available for \$14.95 plus \$3.50 shipping (Cdn funds) from Alex Davidson, IRPP, 275 Slater Street, Ottawa, ON K1P 5H9 (613)238-2296 or Michael Dence, Royal Society of Canada, 344 Wellington Street, Ottawa, ON K1A 0N4. (613)992-3468.

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Whether it's a bucket full or a truckload a day, fish wastes from sport and commercial fishing can pile up fast. Disposal of such wastes has been a major problem at campgrounds, at private and municipal piers, and at commercial fish processing facilities. The booklet, *The Compost Solution to Dockside Fish Wastes*, describes how to make fish wastes into a useful, garden enhancing, odor-free and nutrient rich compost. For more information write or call Sea Grant Institute at the University of Wisconsin-Madison, 1800 University Avenue, Madison, WI 53705. (608)262-0645.

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A bibliography on research publications from 1860 to mid-1988 on geological and physical processes in Lake Michigan is available through the Illinois State Geological Survey's Department of Energy and Natural Resources. The *Lake Michigan Bibliography* is useful for Great Lakes researchers, environmental managers and citizens assessing past work on Lake Michigan and planning future studies.

The *Lake Michigan Database*, a file of over 6,400 entries of research publications on Lake Michigan, is also available in electronic format. The database can be provided in ASCII code on 3-1/2 or 5-1/4-inch disks.

Photocopies of the bibliography may be ordered for \$30.50 (US funds) plus handling, or the database purchased for \$1,525 (US funds) from the Illinois State Geological Survey, 615 E. Peabody Drive,

Champaign, IL 61820. For further information telephone Beth Morgan at (217)244-2183.

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The Rawson Academy of Aquatic Science has recently completed a study and published a report entitled *Towards an Ecosystem Charter for the Great Lakes - St. Lawrence*. This document is the text of a proposed charter that affirms a desire for ecosystem integrity, beneficial management and sustainable development. The report also contains a bibliography and four appendices covering the role of information in Great Lakes management, a review of 15 Great Lakes agreements and a list of project participants.

To order a copy of the report send a cheque or money order for \$15 (Cdn funds) payable to the Rawson Academy of Aquatic Science, One Nicholas Street, Suite 404, Ottawa, ON K1N 7B7, telephone (613)563-2636. For orders outside Canada, add \$2 postage and handling.

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The Michigan Sea Grant College Program, in cooperation with the International Joint Commission, Environment Canada, Great Lakes Commission, Michigan State University and The Center for the Great Lakes, has produced a set of six fact sheets on the Great Lakes basin. The brochures are available from Michigan Sea Grant Extension, Cooperative Extension Service, Michigan State University, 10-B Agriculture Hall, East Lansing, MI 48824-1039. (517)355-0240 or contact the IJC Regional Office.

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*Living Lightly on the Planet, Volumes 1 and II* is designed to inform and motivate junior and senior high students to consider the environment in their lifestyle choices. The two supplemental activity guides provide background information to help a teacher infuse environmental studies into science and social studies classes. Resource materials such as maps, student role cards and case studies are included to enhance the presentation of concepts.

Volume I (grades 7-9) and Volume II (grades 10-12) can be purchased for \$17 each (US funds plus tax, postage and handling) by check or money order payable to Schlitz Audubon Center, 1111 East



Brown Deer Road, Milwaukee, WI 53217.  
(414)352-2880.

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A consultant's report, *Study of the Ontario Environmental Protection Industry* has been released by the Ontario Ministry of the Environment. The report provides the first in-depth characterization of the environmental protection industry in Ontario and includes analyses of air pollution control, wastewater treatment, solid waste disposal and recycling, and the monitoring and analysis of environmental data. Copies of the report are available through Carl Griffiths at the Ontario Ministry of the Environment, 135 St. Clair Avenue West, Toronto, ON M4V 1P5. (416)323-4581.

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A new publication is now available from the Great Lakes Commission. *Travel, Tourism and Outdoor Recreation in the Great Lakes States: A Statistical Profile* includes a narrative section and six "mini" profiles ranging from the recreational boating industry to park attendance. It is available for \$10 (US funds) from the Great Lakes Commission, The Argus II Building, 400 South Fourth Street, Ann Arbor, MI 48103-4816. (313)665-9135.

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*Living in Water* is a classroom-based aquatic science curriculum using 36 hands-on science experiments and activities to teach children the physical and biological characteristics of marine and freshwater habitats. The curriculum is appropriate for grades 4-6. To order a copy of the curriculum, send a check for \$10 (US funds) or \$12 (Cdn funds) to the National Aquarium in Baltimore, Education Department, Pier 3, 501 East Pratt Street, Baltimore, MD 21202. (301)576-3887.

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An eight-page fact sheet on the zebra mussel, *Dreissena polymorpha*: *An Unwelcome New Great Lakes Invader*, is available from New York Sea Grant Extension. The fact sheets cover biology, ecological impacts, physical impacts and control methods. To receive a copy forward 60¢ (US funds) to New York Sea Grant Extension, State University College, Brockport, NY 14420. (716)395-2638.

## EVENTS

### INTERNATIONAL JOINT COMMISSION Schedule of Meetings

The following includes meetings scheduled by the Commission and its various boards. Please contact an IJC office for further information.

March	13-14	Technological Committee Windsor, ON
	16	Science Advisory Board Executive Committee Windsor, ON
	28-29	Water Quality Programs Committee Windsor, ON
April	18	Great Lakes Water Quality Board Meeting Washington, DC
	18-20	IJC Semi-Annual Meeting Washington, DC
May	23-25	Great Lakes Science Advisory Board Lansing, MI
June	6-7	IJC Executive Session Windsor, ON
	6-7	Joint Canadian/U.S. Coast Guard Meeting on Great Lakes Water Quality Agreement Windsor, ON

### General Conferences

Prepare yourself for the future by attending a **summer course at Stone Laboratory**, Ohio's freshwater biological field station on Gibraltar Island in Lake Erie. Twelve or more college level courses are offered in biology, botany, entomology, natural resources, education and zoology. The courses last from one to five weeks.

For further information contact Dr. Jeffrey Reutter, director of F.T. Stone Laboratory, 1541 Research Center, 1314 Kinnear Road, Columbus, OH 43212-1194. (614)292-8949.

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The **Department of Civil Engineering and the International School for Water Resources** at Colorado State University offer a series of short continuing education courses focusing on water quality management for the 1990s. Special attention will be given to hydraulic structures and pollution control. The course, "Design of Water Quality Monitoring Networks" will be presented June 11-15,

while "Activated Sludge Process Controls" will be the focus of another course June 25-28, 1990. For further information, call or write Thomas G. Sanders, Department of Civil Engineering, Colorado State University, Fort Collins, CO 80523. (303)491-6222.

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**Zebra mussels**, which are threatening the health of the Great Lakes system and are likely to cause million of dollars in public and private property damage, will be discussed at a public information meeting on April 30, 1990 in Toronto, Ontario. Four leading experts will discuss the invasion of the clam to the lakes as part of a series of Limnology Lectures focusing on Great Lakes water quality issues presented by the Marine Programming Department of Harbourfront Corporation.

The meeting is free and will start at 7:30 p.m. in the Brigantine Room of York Quay Centre, Harbourfront, 235 Queen's Quay West. For information contact Fred Addis at (416)973-4119 or Trevor Chambers at (416)973-4147, or write to them at



Harbourfront Corporation, 410 Queen's Quay West, Toronto, ON M5V 2Z3.

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The celebration of **National Drinking Water Week** will be held during the week of May 6-12, 1990. The purpose of this important event is to remind consumers of the importance of quality drinking water and is supported by non-profit organizations, businesses and companies. For information about home water quality, write to Water Quality Association, P.O. Box 606, Lisle, IL 60532 and on Water Week/Take Credit, NYS Department of Environmental Conservation, 50 Wolf Road, Room 310, Albany, NY 12233-3501 or call Lois New at (518)457-0849.

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The Great Lakes Institute of the University of Windsor will host the **Thirty-third Annual Conference on Great Lakes Research** on May 13-17, 1990 on the Windsor, Ontario campus. The conference, the annual meeting of the International Association for Great Lakes Research, will also include a special symposium on **Great Lakes Water Levels Forecasting** and the use of water levels statistics for decision-making. The symposium is cosponsored by NOAA's Great Lakes Environmental Research Laboratory (GLERL), the Great Lakes Commission and the US Army Corps of Engineers. The two-day event is scheduled for May 17-18 and will draw upon the region's scientific, academic and policy leadership to address key lake level management issues.

For more information on the Great Lakes Water Levels Forecasting symposium, contact Holly C. Hartmann, GLERL, 2205 Commonwealth Boulevard, Ann Arbor, MI 48105-1593, telephone (313)668-2148 or Tom Crane, Great Lakes Commission, The Argus II Building, 400 S. Fourth Street, Ann Arbor, MI 48103, (313)665-9135.

For additional information on the IAGLR conference, contact Frank A.P.C. Gobas, The Great Lakes Institute, University of Windsor, Windsor, ON N9B 3P4. (519)253-4232, ext. 2731 or 3449.

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The **Forty-third Annual Conference of the Canadian National Committee for Irrigation and Drainage** will be held at Penticton, British Columbia, May 16-18,

1990. This year's theme will be "Water Management and Environmental Quality." For more information, contact Dr. Sie-Tan Chieng, Bioresource Engineering Department, 2357 Main Mall, University of British Columbia, Vancouver, BC V6T 1W5. (604)228-4426.

At the same time and place, the Canadian Water Resources Association will hold its **43rd Annual Conference** on the theme, "Innovations in River Basin Management." Topics include integrated management, privatization, developing countries, climate change, water quality and biological aspects of ecosystem management. For details about the association's conference, contact C.D. Sellars, CWRA, c/o Kohn Leonoff Ltd., 10180 Shellbridge Way, Richmond, BC V6X 2W7.

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**Water Works 1990**, the binational conference on Great Lakes waterfront development, has been set for May 16-18, 1990 in Milwaukee, Wisconsin. The conference is being held in conjunction with the annual meeting of the **International Great Lakes-St. Lawrence Mayors' Conference**. Cosponsors for both meetings include the Center for the Great Lakes and the cities of Milwaukee and Montréal, Québec.

For more information on the conference contact Cindy Benjamin at the City of Milwaukee, c/o Kris Martinsek, 809 North Broadway, Milwaukee, WI 53202. (414)223-5937.

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Niagara Falls, New York is the site chosen by the Association of Wetland Managers to hold their May 16-19, 1990 **International Symposium on Wetlands of the Great Lakes**. This international symposium will address issues concerning stabilization of water levels, shoreline development, pollution, and protection and management efforts. For further information, contact Jon Kusler, The Association of Wetland Managers, Inc., P.O. Box 2463, Berne, NY 12023-9746. (518)872-1804.

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May 18, 1990 is **Environmental Awareness Day** for high school students around the Waterloo region. A day-long conference will be held at Bingeman Park in Kitchener, Ontario to help students become aware of our environment and

associated issues. Invited guest speaker is David Suzuki. If you want to learn more about the conference contact Scott Erskine, Grand River Collegiate, 175 Indian Road, Kitchener, ON N2B 2S7. (519)576-5100.

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The Great Lakes Research Consortium and National Science Foundation are offering a three-week summer **Practicum in Applied Environmental Problem-Solving** for undergraduate teaching faculty from June 2 to June 23, 1990 on the shores of Lake Ontario at State University of New York (SUNY) College at Oswego.

For more information or application forms contact Jack Manno, Associate Director, Great Lakes Research Consortium, 214 Baker Lab, SUNY ESF, 1 Forestry Drive, Syracuse, NY 13210. (315)470-6816.

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The United States Environmental Protection Agency of Cincinnati and the International Association for Clean Technology are cosponsoring a conference on **The Environmental Challenge of the 1990s**, to be held at the Omni Shoreham Hotel in Washington, DC on June 10-13, 1990. If you wish to receive further information on registration contact Mary Bourassa, Science Applications International Corporation (SAIC), 8400 Westpark Drive, McLean, VA 22101. (708)734-3198.

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An exhibition on **Solid Waste and Recycling Technology 1990** will be held at the Cobo Conference/Exhibition Center in Detroit, Michigan from June 13-15, 1990. This exhibition will focus on basic and advanced recycling, marketing of recyclable goods, waste to energy incineration, and landfill issues. For further information contact Rachelle Scheinbach, Institute for International Research - Bellevue, 13555 Bel-Red Road, Bellevue, WA 98009. (206)746-4173 or 1-800-468-7644.



## DEAR FOCUS READERS:

### IN CASE YOU MISSED IT...

The **Annual Reports Request Form** was included on page 12 of July/August 1989 issue of *Focus* (Volume 14, Issue 2). This form lists all available reports on Great Lakes water quality issues, including the 1989-1990 reports. If you would like to receive any of these reports and have not sent us a request form, please dig out last July's issue, fill out and return this form to:

Brian Shoust  
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International Joint  
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Windsor, ON N9A 6T3  
IN THE U.S. :  
P.O. BOX 32869  
Detroit, MI 48232

**You will not automatically receive any IJC reports unless the reports request form is returned to us, so send it in today!**

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Please fill out the postcard at right, by making any necessary changes to the mailing label and returning it by June 1, 1990. All subscribers who return the postcard by this deadline will continue to receive future issues of *Focus on International Joint Commission Activities*. Thank you!

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